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Semiquantitative spectrographic analysis of
drill core from Sunbeam mine, Custer County, Idaho

By
Kathleen M. Johnson¹

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This report is preliminary and has not been reviewed for conformity with
U.S. Geological Survey editorial standards and stratigraphic nomenclature.

¹U.S. Geological Survey
Denver, Colorado 80225

Semiquantitative spectrographic analysis of
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Geologists for Azcon Corporation, Salt Lake City, Utah undertook an exploratory drilling program at Sunbeam mine, Custer County, Idaho (figure 1) in the summer of 1976. Core from three drill holes (table 1) was made available to the U.S. Geological Survey by Sunbeam Mining Corporation in 1981 and was analyzed by semiquantitative spectrographic methods in 1982. This report presents the results of those analyses.

Sunbeam mine exploits a vein and disseminated gold-silver deposit hosted in rhyolite and pyroclastic rocks of Eocene age. The rhyolite intrudes volcanoclastic rocks of the Custer graben, one of several northeast-trending volcanotectonic features that form the trans-Challis fault system (Kiilsgaard and others, 1986). Brecciation and intense silicification followed intrusion of the rhyolite and affected both the rhyolite and the host rocks. Both the rhyolite and the adjacent pyroclastic rocks are altered to clay minerals and quartz. Zircon from altered rhyolite yielded a fission-track age of 45.8 ± 2.3 Ma (Johnson and McIntyre, 1983); this is thought to be the age of alteration and mineralization. The geologic relations (McIntyre and Johnson, 1983) indicate that a closely contemporaneous interplay between intrusion, continued fracturing, and prolonged fracture-controlled circulation of hydrothermal fluids produced the observed patterns of alteration and mineralization.

Sunbeam mine was first staked in 1879 but had little production until a mill was erected in 1903. Litigation closed the mine in 1911 and it remained closed until modern exploration began in 1967. U.S. Bureau of Mines records indicate that total production was more than 18,000 oz gold and more than 23,000 oz silver (Johnson and Fisher, 1987). Early production was from fracture-controlled chimney-like veins in both rhyolite and pyroclastic rocks. Recent exploration has focused on disseminated metals around those veins.

Table 2 shows the results of semiquantitative spectrographic analysis of samples taken at approximately ten-foot intervals down the three 500-foot cores. Sample numbers show both the hole number and the number of feet from the surface. SB32056 is from hole number 32 at a depth of 56 ft.

Spectrographic analysis was done by techniques described by Grimes and Marranzino (1968). Results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. The values are reported by giving the nearest midpoint on a six-step scale using 1, 1.5, 2, 3, 5, 7, 10 as the midpoints of the intervals. Motooka and Grimes (1976) report that the precision of this method is approximately plus or minus one reporting interval at the 83 percent confidence level and plus or minus two intervals at the 95 percent confidence level.

REFERENCES CITED

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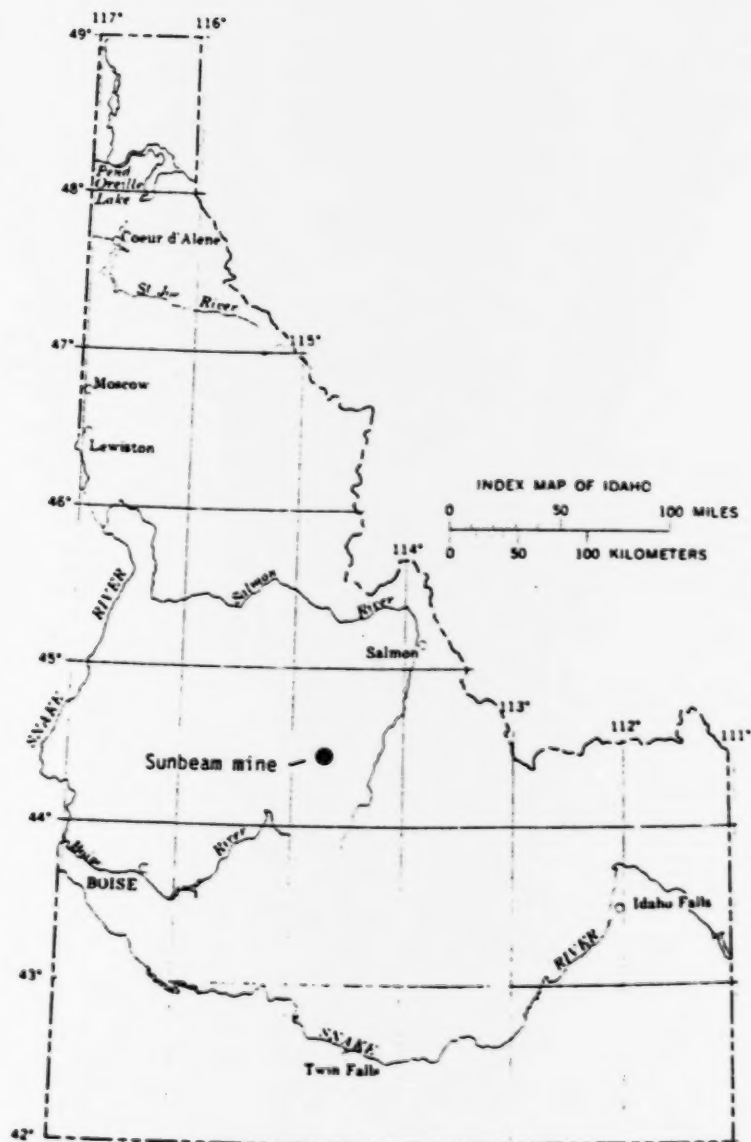


Figure 1. Index map for Sunbeam mine area, Custer County, Idaho.

Table 1.--Location, orientation, and depth data for drill holes, Sunbeam mine

Hole Number	Collar Elev.	Latitude	Longitude	Bearing	Plunge	Total Depth
32	7500'	44°26'06"	114°44'03.5"	N33°W	60°	500'
33	7755'	44°26'08"	114°43'58.5"	N36°W	45°	500'
34	7998'	44°26'07"	114°44'10"	N32°W	45°	500'

Table 2.--Geochemical data from drill holes, Sunbeam mine, Idaho.
Analyses by semiquantitative spectrographic methods. Values in parts per million unless otherwise noted. N = not detected at limit of detection.
Analyses for the following elements yielded no values above the detection limits shown: Au (10), Bi (10), Cd (20), Sn (10), Th (100). Analyst:
E.F. Cooley

Sunbeam Drill Core Data--Spec

Sample	Fe%	Mg%	Ca%	Ti%	Mn	Ag	As	B	Ba	Be	Co	Cr	Cu	La
S032010	1.00	.20	<0	.10	50	10.0	<0	10	300	3	<0	N	5	30
S032015	.50	.20	<0	.10	20	1.5	N	10	200	2	<0	N	<0	30
S032026	1.00	.20	<0	.10	20	7.0	<0	10	300	2	<0	N	<0	50
S032037	.70	.20	<0	.07	50	7.0	N	10	200	2	<0	N	5	70
S032040	1.00	.20	<0	.10	50	5.0	<0	10	300	2	<0	N	<0	70
S032056	1.00	.20	<0	.10	20	10.0	<0	10	200	5	<0	N	<0	50
S032065	1.00	.20	<0	.15	50	10.0	<0	10	300	5	<0	N	<0	50
S032079	.50	.20	<0	.15	50	5.0	<0	10	300	3	<0	N	<0	70
S032085	1.50	.20	<0	.20	30	5.0	<0	10	300	3	<0	N	5	70
S032091	2.00	.05	<0	.05	30	20.0	300	20	200	3	<0	N	5	50
S032102	.50	.15	<0	.10	50	7.0	1,000	10	300	5	<0	N	<0	70
S032110	.50	.10	<0	.10	20	5.0	300	10	200	5	<0	N	<0	50
S032120	.20	.20	<0	.10	30	3.0	<0	10	300	3	<0	N	<0	70
S032128	1.50	.20	<0	.10	30	10.0	500	10	300	2	<0	N	5	70
S032137	.20	.20	<0	.10	30	10.0	500	10	300	3	<0	N	<0	70
S032145	.50	.20	<0	.10	30	20.0	1,000	10	300	3	<0	N	<0	70
S032155	.50	.10	<0	.10	30	7.0	<0	10	200	3	<0	N	5	70
S032168	.10	.10	<0	.10	20	3.0	N	10	200	3	<0	N	5	70
S032175	.20	.15	<0	.10	30	5.0	<0	10	200	3	<0	N	5	70
S032184	.10	.20	<0	.07	30	2.0	N	10	300	3	<0	N	<0	70
S032197	.30	.15	<0	.10	20	10.0	500	10	200	3	<0	N	<0	70
S032207	1.00	.20	<0	.10	30	2.0	<0	10	200	3	<0	N	20	70
S032213	1.50	.20	<0	.10	30	20.0	3,000	10	200	3	<0	N	15	70
S032224	2.00	.30	<0	.10	50	10.0	3,000	20	700	3	<0	N	10	70
S032230	2.00	.50	.05	.20	50	15.0	3,000	20	700	3	<0	N	20	70
S032239	1.50	.20	.05	.15	50	5.0	N	20	500	3	<0	N	7	70
S032250	1.00	.30	<0	.15	20	20.0	2,000	15	700	2	<0	N	<0	50
S032259	1.00	.20	.05	.15	50	7.0	200	20	500	3	<0	N	10	100
S032267	.20	.50	.05	.20	50	2.0	<0	20	700	3	<0	N	<0	100
S032276	1.50	.20	.10	.15	50	7.0	700	20	500	3	<0	N	30	70
S032286	.15	.15	<0	.07	30	7.0	<0	20	300	3	<0	N	<0	50
S032297	.20	.30	.05	.10	50	15.0	N	20	500	3	<0	N	<0	70
S032307	2.00	.50	<0	.20	50	20.0	N	20	700	3	<0	N	20	100
S032313	2.00	.20	<0	.20	30	10.0	700	20	700	3	<0	N	50	100
S032323	2.00	.50	<0	.20	50	5.0	500	20	1,000	3	<0	N	<0	100
S032340	3.00	.50	<0	.30	200	3.0	1,000	20	1,000	3	<0	N	7	150
S032352	3.00	.50	<0	.20	300	3.0	2,000	20	1,000	3	<0	N	10	70
S032361	3.00	.50	<0	.20	100	3.0	1,000	20	700	3	<0	N	10	100
S032372	3.00	.50	<0	.30	150	5.0	N	20	1,000	3	<0	N	30	100
S032381	2.00	.50	<0	.20	100	3.0	<0	20	1,000	3	<0	N	5	100
S032388	2.00	.50	<0	.20	100	2.0	1,000	20	1,000	5	<0	N	5	100
S032400	2.00	.50	.07	.20	70	7.0	N	20	500	3	<0	N	5	100
S032410	1.00	.20	.05	.15	50	5.0	N	20	500	3	<0	N	5	70
S032415	1.00	.20	.05	.10	50	10.0	N	20	500	3	<0	N	5	70
S032425	1.00	.20	.07	.10	70	5.0	N	20	500	5	<0	N	5	70

Sunbeam Drill Core Data--Spec

Sample	Mo	Nb	Ni	Pb	Sb	Sc	Sr	V	W	Y	Zn	Zr
S032010	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032015	N	<0	<0	10	N	<0	N	10	N	<0	N	150
S032026	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032037	N	<0	<0	30	N	<0	N	10	N	<0	N	150
S032040	N	<0	<0	30	N	<0	N	10	N	<0	N	150
S032056	N	<0	<0	50	N	<0	N	10	N	<0	N	50
S032065	N	<0	<0	50	N	<0	N	10	N	<0	N	70
S032079	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032085	N	<0	<0	70	N	<0	N	10	N	<0	N	300
S032091	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032102	N	<0	<0	50	N	<0	N	10	N	<0	N	150
S032110	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032120	N	<0	<0	20	N	<0	N	10	N	<0	N	150
S032128	N	<0	<0	50	N	<0	N	10	N	<0	N	150
S032137	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032145	N	<0	<0	50	N	<0	N	10	N	<0	N	200
S032155	N	<0	<0	20	N	<0	N	10	N	<0	N	200
S032168	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032175	N	<0	<0	30	N	<0	N	10	N	<0	N	200
S032184	N	<0	<0	10	N	<0	N	10	N	<0	N	100
S032197	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032207	N	<0	<0	20	N	<0	N	10	N	<0	N	200
S032213	20	<0	<0	20	100	<0	N	10	N	<0	N	100
S032224	10	<0	<0	20	100	<0	N	15	N	10	N	200
S032230	7	<0	<0	70	<0	<0	N	15	N	10	N	200
S032239	N	<0	<0	50	N	<0	N	15	N	10	N	200
S032250	N	<0	<0	20	<0	<0	N	10	N	<0	N	200
S032259	N	<0	<0	20	N	<0	N	15	N	10	N	200
S032267	N	<0	<0	10	<0	<0	N	15	N	10	N	200
S032276	N	<0	<0	50	<0	<0	N	15	N	10	N	200
S032286	N	<0	<0	10	N	<0	N	20	N	<0	N	200
S032297	N	<0	<0	20	N	<0	N	15	N	<0	N	100
S032307	10	20	<0	50	N	<0	N	15	N	10	N	300
S032313	5	<0	<0	50	<0	<0	N	15	N	10	N	200
S032323	5	<0	<0	100	<0	<0	N	15	N	10	N	300
S032340	20	20	<0	50	<0	20	N	15	N	50	N	700
S032352	N	20	<0	50	N	10	N	15	N	20	N	700
S032361	<0	20	<0	30	N	10	N	15	N	20	N	500
S032372	N	20	<0	50	N	15	N	20	N	20	N	700
S032381	<0	<0	<0	50	N	<0	N	15	N	10	N	200
S032388	<0	<0	<0	50	N	<0	N	15	N	10	N	150
S032400	N	<0	<0	50	N	<0	N	15	N	10	N	300
S032410	N	<0	<0	30	N	<0	N	15	N	10	N	200
S032415	N	<0	<0	20	N	<0	N	15	N	10	N	200
S032425	N	<0	<0	20	N	<0	N	15	N	10	N	200

Sunbeam Drill Core Data--Spec

Sample	Mo	Nb	Ni	Pb	Sb	Sc	Sr	V	W	Y	Zn	Zr
S032010	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032015	N	<0	<0	10	N	<0	N	10	N	<0	N	150
S032026	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032037	N	<0	<0	30	N	<0	N	10	N	<0	N	150
S032040	N	<0	<0	30	N	<0	N	10	N	<0	N	150
S032056	N	<0	<0	50	N	<0	N	10	N	<0	N	50
S032065	N	<0	<0	50	N	<0	N	10	N	<0	N	70
S032079	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032085	N	<0	<0	70	N	<0	N	10	N	<0	N	300
S032091	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032102	N	<0	<0	50	N	<0	N	10	N	<0	N	150
S032110	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032120	N	<0	<0	20	N	<0	N	10	N	<0	N	150
S032128	N	<0	<0	50	N	<0	N	10	N	<0	N	150
S032137	N	<0	<0	50	N	<0	N	10	N	<0	N	100
S032145	N	<0	<0	50	N	<0	N	10	N	<0	N	200
S032155	N	<0	<0	20	N	<0	N	10	N	<0	N	200
S032168	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032175	N	<0	<0	30	N	<0	N	10	N	<0	N	200
S032184	N	<0	<0	10	N	<0	N	10	N	<0	N	100
S032197	N	<0	<0	20	N	<0	N	10	N	<0	N	100
S032207	N	<0	<0	20	N	<0	N	10	N	<0	N	200
S032213	20	<0	<0	20	100	<0	N	10	N	<0	N	100
S032224	10	<0	<0	20	100	<0	N	15	N	10	N	200
S032230	7	<0	<0	70	<0	<0	N	15	N	10	N	200
S032239	N	<0	<0	50	N	<0	N	15	N	10	N	200
S032250	N	<0	<0	20	<0	<0	N	10	N	<0	N	200
S032259	N	<0	<0	20	N	<0	N	15	N	10	N	200
S032267	N	<0	<0	10	<0	<0	N	15	N	10	N	200
S032276	N	<0	<0	50	<0	<0	N	15	N	10	N	200
S032286	N	<0	<0	10	N	<0	N	20	N	<0	N	200
S032297	N	<0	<0	20	N	<0	N	15	N	<0	N	100
S032307	10	20	<0	50	N	<0	N	15	N	10	N	300
S032313	5	<0	<0	50	<0	<0	N	15	N	10	N	200
S032323	5	<0	<0	100	<0	<0	N	15	N	10	N	300
S032340	20	20	<0	50	<0	20	N	15	N	30	N	700
S032352	N	20	<0	50	N	10	N	15	N	20	N	700
S032361	<0	20	<0	30	N	10	N	15	N	20	N	500
S032372	N	20	<0	50	N	15	N	20	N	20	N	700
S032381	<0	<0	<0	50	N	<0	N	15	N	10	N	200
S032388	<0	<0	<0	50	N	<0	N	15	N	10	N	150
S032400	N	<0	<0	50	N	<0	N	15	N	10	N	300
S032410	N	<0	<0	30	N	<0	N	15	N	10	N	200
S032415	N	<0	<0	20	N	<0	N	15	N	10	N	200
S032425	N	<0	<0	20	N	<0	N	15	N	10	N	200

Sunbeam Drill Core Data--Spec--continued

Sample	Fe%	Mg%	Ca%	Ti%	Mn	Ag	As	B	Ba	Be	Co	Cr	Cu	La
S032435	1.50	.30	.05	.15	70	5.0	<0	20	500	3	<0	N	5	70
S032445	10.00	.30	.05	.10	70	3.0	N	20	500	3	<0	N	<0	100
S032455	10.00	.50	.05	.10	150	2.0	1,000	20	700	5	<0	N	<0	100
S032462	2.00	.50	.05	.10	100	3.0	200	20	500	3	<0	N	5	70
S032482	.50	.50	.05	.10	100	1.0	N	20	500	3	<0	N	<0	100
S032490	.70	.20	<0	.10	70	1.5	N	20	300	3	<0	N	<0	100
S032497	.30	.50	.05	.10	100	1.0	N	20	500	3	<0	N	<0	100
S033015	.15	.50	<0	.10	50	5.0	N	20	300	2	<0	N	<0	100
S033023	1.00	.50	<0	.10	50	5.0	<0	20	300	2	<0	N	<0	100
S033035	1.00	.50	<0	.15	70	5.0	N	20	300	3	<0	N	5	100
S033041	1.50	.50	<0	.10	50	2.0	N	20	300	3	<0	N	5	100
S033050	1.50	.50	<0	.15	50	3.0	N	20	300	3	<0	N	7	100
S033060	.50	.50	<0	.10	30	1.5	N	20	300	3	<0	N	15	100
S033070	1.50	.50	<0	.15	50	2.0	N	20	300	3	<0	N	5	100
S033080	1.00	.70	<0	.10	70	3.0	N	20	300	3	<0	N	<0	100
S033087	1.00	.50	<0	.10	50	20.0	N	20	300	3	<0	N	50	100
S033095	1.00	.50	<0	.10	50	3.0	N	20	300	3	<0	N	15	100
S033105	1.50	.30	<0	.10	30	3.0	N	20	300	2	<0	N	<0	100
S033115	1.00	.30	<0	.10	30	5.0	N	20	300	2	<0	N	<0	70
S033120	.50	.20	<0	.15	30	3.0	N	20	300	2	<0	N	5	100
S033135	1.00	.30	<0	.10	30	5.0	N	20	300	2	<0	N	20	70
S033140	.50	.30	<0	.10	30	2.0	N	20	500	2	<0	N	20	70
S033150	1.00	.50	<0	.10	30	5.0	N	20	500	2	<0	N	5	70
S033160	1.50	.20	<0	.07	30	30.0	N	20	500	3	<0	N	10	70
S033170	1.00	.15	<0	.10	20	20.0	N	20	500	2	<0	N	7	70
S033174	.50	.10	<0	.05	20	20.0	N	20	300	2	<0	N	<0	50
S033185	1.00	.20	<0	.07	50	3.0	N	20	700	2	<0	N	<0	70
S033195	.50	.15	<0	.07	30	2.0	N	20	500	2	<0	N	50	70
S033203	1.00	.15	<0	.05	20	10.0	<0	20	500	2	<0	N	10	50
S033211	1.00	.20	<0	.07	70	2.0	<0	20	500	2	<0	N	<0	70
S033221	.70	.15	<0	.07	20	3.0	N	20	500	2	<0	N	<0	70
S033232	1.00	.20	<0	.05	50	2.0	N	20	500	2	<0	N	<0	70
S033240	1.00	.15	<0	.10	50	5.0	N	20	500	2	<0	N	10	70
S033248	2.00	.50	<0	.10	50	3.0	N	20	700	2	<0	N	30	70
S033256	1.50	.30	<0	.10	50	3.0	N	20	700	2	<0	N	10	70
S033266	1.50	.30	<0	.30	50	7.0	N	20	700	2	<0	N	30	100
S033276	2.00	.20	<0	.10	50	7.0	<0	20	700	3	<0	N	30	70
S033285	1.00	.30	<0	.10	30	20.0	N	20	700	3	<0	N	30	100
S033292	2.00	.30	<0	.10	50	20.0	<0	20	700	3	<0	N	50	70
S033303	2.00	.30	<0	.15	50	20.0	N	20	700	3	<0	N	50	100
S033311	2.00	.20	<0	.15	50	5.0	N	20	500	3	<0	N	5	100
S033320	2.00	.15	<0	.15	20	5.0	N	20	500	3	<0	N	<0	100
S033327	1.50	.20	<0	.15	20	5.0	N	20	700	3	<0	N	<0	100
S033335	3.00	.20	<0	.15	20	5.0	N	20	500	3	<0	N	5	100
S033345	1.00	.20	<0	.15	20	15.0	N	20	700	3	<0	N	5	100

Sunbeam Drill Core Data--Spec--continued

Sample	Mo	Nb	Ni	Pb	Sb	Sc	Sr	V	W	Y	Zn	Zr
SB32435	N	<0	<0	70	N	<0	N	15	N	10	N	200
SB32445	<0	<0	<0	50	N	<0	<0	10	N	10	N	200
SB32455	10	20	<0	50	N	5	N	15	N	20	N	200
SB32462	10	20	<0	30	N	5	N	10	N	15	N	150
SB32482	N	<0	<0	50	N	<0	N	15	N	15	N	200
SB32490	N	<0	<0	50	N	<0	N	15	N	10	N	200
SB32497	N	<0	<0	30	N	5	N	10	N	10	N	200
SB33015	N	<0	<0	50	N	<0	N	15	N	10	N	200
SB33023	N	<0	<0	70	N	5	N	10	N	10	N	200
SB33035	N	<0	<0	70	N	5	N	10	N	10	N	300
SB33041	N	<0	<0	50	N	<0	N	10	N	10	N	200
SB33050	N	20	<0	50	N	<0	N	10	N	10	N	200
SB33060	N	<0	<0	30	N	<0	N	10	N	10	N	150
SB33070	N	<0	<0	50	N	5	N	10	N	10	N	200
SB33080	N	<0	<0	50	N	5	N	10	N	10	N	300
SB33087	10	<0	<0	70	N	<0	N	10	N	10	N	100
SB33095	N	<0	<0	20	N	<0	N	10	N	10	N	200
SB33105	<0	<0	<0	50	N	<0	N	10	N	10	N	300
SB33115	N	<0	<0	15	N	<0	N	10	N	10	N	200
SB33120	N	<0	<0	15	N	<0	N	10	N	10	N	200
SB33135	N	<0	<0	30	N	<0	N	10	N	10	N	200
SB33140	N	<0	<0	10	N	<0	N	10	N	10	N	200
SB33150	N	<0	<0	30	N	<0	N	10	N	10	N	150
SB33160	N	<0	<0	20	N	<0	N	10	N	10	N	150
SB33170	N	<0	<0	20	N	<0	N	10	N	10	N	50
SB33174	N	<0	<0	7	N	<0	N	10	N	10	N	30
SB33185	N	<0	<0	20	N	<0	N	10	N	10	N	50
SB33195	N	<0	<0	10	N	<0	N	10	N	10	N	50
SB33203	N	<0	<0	20	N	<0	N	10	N	10	N	100
SB33211	N	<0	<0	30	N	<0	N	10	N	10	N	70
SB33221	N	<0	<0	30	N	<0	N	10	N	10	N	70
SB33232	N	<0	<0	20	N	<0	N	10	N	10	N	100
SB33240	N	<0	<0	20	N	<0	N	10	N	10	N	50
SB33248	N	<0	<0	20	N	<0	N	10	N	10	N	100
SB33256	N	<0	<0	20	N	<0	N	10	N	10	N	150
SB33266	15	<0	<0	50	N	<0	N	10	N	10	N	150
SB33276	5	<0	<0	30	N	10	N	30	N	20	N	300
SB33285	10	<0	<0	20	N	<0	N	20	N	10	N	70
SB33292	15	<0	<0	50	N	<0	N	15	N	10	500	100
SB33303	15	<0	<0	50	N	<0	N	15	N	15	1,000	200
SB33311	<0	<0	<0	20	N	<0	N	15	N	10	N	200
SB33320	<0	<0	<0	20	N	<0	N	15	N	10	N	300
SB33327	<0	<0	10	20	N	<0	N	15	N	10	N	200
SB33335	<0	<0	10	50	N	<0	N	15	N	10	N	200
SB33345	<0	<0	15	20	N	<0	N	15	N	10	N	200

Sunbeam Drill Core Data--Spec--continued

Sample	FeZ	MgZ	CaZ	TiZ	Mn	Ag	As	B	Ba	Be	Co	Cr	Ku	La
S033355	1.50	.20	<0	.20	50	3.0	N	20	500	2	<0	N	5	70
S033364	1.50	.20	<0	.20	20	2.0	N	20	500	2	<0	N	5	70
S033373	2.00	.20	.05	.20	100	3.0	N	20	500	3	<0	N	5	70
S033382	1.50	.20	.05	.15	20	10.0	N	20	500	3	<0	N	5	50
S033390	.50	.20	<0	.10	30	3.0	N	20	500	3	<0	N	<0	100
S033401	1.00	.20	<0	.15	30	2.0	N	20	500	3	<0	N	<0	70
S033409	1.50	.20	<0	.15	30	5.0	N	20	500	3	<0	N	5	100
S033417	2.00	.20	.05	.20	20	5.0	N	20	500	3	<0	N	5	7
S033425	1.50	.20	<0	.15	30	5.0	N	20	500	3	<0	N	5	100
S033437	1.50	.20	.10	.10	30	3.0	N	20	500	5	<0	N	5	100
S033445	1.50	.30	.15	.20	70	2.0	N	20	500	5	<0	N	20	150
S033455	2.00	.15	.05	.15	50	20.0	N	20	500	5	<0	N	5	100
S033463	2.00	.20	.05	.15	30	2.0	N	20	500	3	<0	N	5	100
S033473	1.00	.50	.07	.20	200	2.0	N	20	500	5	<0	10	<0	100
S033480	1.00	.50	.05	.15	200	1.0	N	20	700	5	<0	N	<0	50
S033490	5.00	.50	.50	.15	5,000	N	N	20	700	7	<0	<0	5	100
S033500	7.00	.50	.30	.20	5,000	N	N	20	1,000	7	<0	<0	<0	70
S034006	1.50	.20	<0	.15	200	2.0	N	20	1,000	5	<0	N	5	70
S034018	5.00	.30	<0	.10	150	2.0	N	20	1,000	5	<0	N	15	70
S034025	3.00	.20	<0	.10	100	5.0	500	20	300	5	<0	N	20	70
S034033	2.00	.20	<0	.10	70	1.5	N	20	300	5	<0	N	10	100
S034043	2.00	.30	<0	.10	100	2.0	N	20	300	5	<0	N	15	200
S034052	1.00	.30	<0	.10	70	3.0	N	20	700	5	<0	N	10	50
S034063	2.00	.20	.05	.10	200	10.0	500	20	1,000	5	<0	N	20	50
S034072	3.00	.20	<0	.20	200	5.0	500	20	700	5	<0	N	10	50
S034083	7.00	.20	<0	.20	150	3.0	<0	20	500	5	<0	10	20	100
S034090	3.00	.30	<0	.30	150	2.0	N	20	2,000	3	<0	N	10	50
S034100	1.50	.20	<0	.30	100	2.0	N	20	2,000	3	<0	N	5	50
S034110	10.00	.50	<0	.30	150	2.0	N	20	3,000	2	<0	<0	20	200
S034117	2.00	.20	<0	.30	100	2.0	N	20	3,000	3	<0	N	10	200
S034126	5.00	.20	<0	.30	100	2.0	N	20	2,000	5	<0	<0	5	100
S034134	2.00	.50	<0	.30	100	5.0	N	20	5,000	5	<0	N	15	200
S034145	5.00	.70	.05	.50	200	15.0	N	20	1,000	5	<0	N	50	200
S034153	1.50	.30	.05	.10	50	50.0	N	20	500	5	<0	N	5	70
S034159	1.00	.20	<0	.10	50	100.0	<0	20	300	5	<0	N	5	70
S034167	.70	.50	<0	.15	50	100.0	500	20	500	5	<0	N	5	70
S034180	.20	.50	<0	.10	50	50.0	<0	20	500	2	<0	N	5	70
S034186	.70	.70	.05	.50	50	10.0	N	20	300	2	<0	200	5	200
S034194	.30	.20	<0	.10	50	70.0	N	20	300	5	<0	N	5	70
S034206	.70	.15	.05	.10	30	70.0	200	20	300	3	<0	<0	7	70
S034214	1.00	.20	.05	.10	50	30.0	200	20	300	3	<0	<0	50	70
S034223	1.50	.30	.05	.10	50	10.0	1,000	20	300	3	<0	<0	10	70
S034233	2.00	.50	<0	.20	50	70.0	1,000	20	300	2	<0	<0	700	100
S034242	3.00	.30	<0	.15	50	15.0	700	20	500	2	<0	<0	20	100
S034248	1.50	.15	<0	.15	50	20.0	700	20	500	2	<0	<0	70	100

Sunbeam Drill Core Data--Spec--continued

Sample	Mo	Nb	Ni	Pb	Sb	Sc	Sr	V	W	Y	Zn	Zr
S033355	<0	<0	<0	20	N	<0	N	15	N	10	N	200
S033364	N	<0	<0	20	N	<0	N	10	N	10	N	300
S033373	<0	<0	<0	70	N	<0	N	15	N	10	N	150
S033382	N	<0	<0	15	N	<0	N	10	N	10	N	200
S033390	<0	<0	<0	20	N	<0	N	15	N	10	N	200
S033401	<0	<0	<0	10	N	<0	N	10	N	10	N	300
S033409	<0	<0	<0	100	N	<0	N	15	N	10	N	200
S033417	N	<0	<0	20	N	<0	N	10	N	10	N	300
S033425	<0	20	<0	30	N	<0	N	15	N	10	N	200
S033437	S	<0	<0	20	N	<0	N	15	N	10	N	300
S033445	N	20	<0	20	N	<0	N	15	N	20	N	300
S033455	<0	20	<0	15	N	<0	N	15	N	10	N	100
S033463	<0	20	<0	30	N	<0	N	15	N	10	N	200
S033473	N	20	<0	20	N	<0	<0	15	N	20	N	300
S033480	N	20	<0	30	N	<0	N	15	N	10	N	200
S033490	N	20	<0	50	N	<0	100	15	N	20	200	300
S033500	N	20	<0	70	N	<0	100	15	N	15	300	200
S034006	S	100	<0	30	N	<0	N	15	N	70	N	500
S034018	N	150	<0	20	N	<0	N	15	N	70	N	700
S034025	N	100	<0	700	N	<0	N	10	N	70	N	700
S034033	N	100	<0	50	N	<0	N	10	N	70	N	700
S034043	S	100	<0	100	N	<0	N	10	N	100	N	700
S034052	S	100	<0	100	N	<0	N	10	N	100	N	700
S034063	S	100	<0	150	N	<0	N	10	N	70	N	500
S034072	15	100	<0	200	N	<0	N	10	N	70	N	500
S034083	10	100	<0	100	N	S	N	20	N	70	N	700
S034090	<0	50	<0	50	N	10	N	15	N	50	N	700
S034100	S	50	<0	50	N	10	N	15	N	50	N	700
S034110	S	70	<0	70	N	15	N	15	N	70	N	700
S034117	S	50	<0	70	N	15	<0	10	N	70	N	1,000
S034126	S	70	<0	70	N	10	N	10	N	70	N	1,000
S034134	S	50	<0	70	N	10	<0	10	N	70	N	700
S034145	S	50	<0	70	N	15	N	100	N	100	N	1,000
S034153	S	20	<0	10	N	<0	N	20	N	10	N	150
S034159	S	20	<0	10	N	<0	N	15	N	10	N	150
S034167	S	20	<0	20	N	<0	N	15	N	10	N	200
S034180	10	20	<0	70	N	<0	N	15	N	10	N	200
S034186	10	20	<0	70	N	10	N	200	50	10	N	500
S034194	<0	20	<0	20	N	<0	N	10	N	10	N	300
S034206	<0	20	<0	10	N	<0	N	15	N	10	N	200
S034214	<0	20	<0	10	N	<0	N	15	N	10	N	100
S034223	S	20	<0	70	N	<0	N	15	N	10	N	200
S034233	S	20	<0	30	N	<0	N	15	N	10	N	200
S034242	S	20	<0	50	N	<0	N	15	N	10	N	200
S034248	S	20	<0	10	N	<0	N	15	N	10	N	300

Sunbeam Drill Core Data--Spec--continued

Sample	Fe%	Mg%	Ca%	Ti%	Mn	Ag	As	B	Ba	Be	Co	Cr	Cu	La
8034260	.50	.50	<0	.15	50	3.0	<0	20	500	2	<0	<0	10	100
8034270	.50	.20	<0	.10	50	20.0	N	20	300	3	<0	<0	10	50
8034277	1.00	.30	<0	.10	50	20.0	N	20	500	3	<0	<0	10	50
8034285	.50	.30	<0	.10	70	20.0	N	20	500	3	<0	<0	5	70
8034297	2.00	.20	<0	.10	50	15.0	N	20	500	2	<0	10	5	70
8034305	3.00	.30	<0	.15	70	15.0	N	20	500	2	<0	15	7	100
8034316	3.00	.30	<0	.30	70	50.0	<0	20	500	2	<0	50	<0	50
8034328	1.00	.30	.05	.15	50	30.0	N	20	500	2	<0	50	<0	50
8034340	3.00	.30	<0	.15	50	10.0	500	20	500	2	<0	50	5	50
8034350	1.50	.30	<0	.30	70	2.0	N	20	500	2	<0	50	<0	50
8034357	1.50	.30	<0	.15	50	3.0	N	20	300	2	<0	20	30	50
8034367	1.00	.30	<0	.30	100	15.0	1,000	20	500	2	<0	30	<0	50
8034375	.50	.30	<0	.15	50	30.0	300	20	700	2	<0	15	<0	50
8034385	3.00	.50	<0	.30	150	5.0	N	20	1,000	3	<0	10	10	100
8034395	7.00	.70	.10	.30	3,000	3.0	N	20	1,000	3	<0	10	20	200
8034403	5.00	.30	.10	.30	300	3.0	500	20	1,000	3	<0	10	15	50
8034413	5.00	.20	<0	.30	100	5.0	1,000	20	1,000	3	<0	10	10	100
8034423	3.00	.30	<0	.30	70	3.0	200	20	1,000	3	<0	10	10	100
8034430	3.00	.20	<0	.30	70	5.0	200	20	1,000	3	<0	10	50	100
8034441	2.00	.20	<0	.30	100	10.0	200	20	700	2	<0	10	10	100
8034450	5.00	.30	<0	.30	100	50.0	2,000	20	700	2	<0	10	15	100
8034460	5.00	.30	<0	.30	100	7.0	300	20	700	2	<0	10	15	100
8034470	5.00	.30	<0	.50	150	2.0	N	20	1,000	2	<0	10	10	100
8034475	3.00	.30	<0	.50	150	2.0	N	20	1,000	2	<0	10	10	100
8034485	10.00	.15	.10	.30	300	10.0	3,000	30	700	3	15	10	20	70
8034493	7.00	.70	.20	.50	10,000	N	N	20	700	2	10	<0	10	70
8034499	7.00	.70	.15	.50	5,000	1.0	N	20	700	2	<0	<0	15	70

Sunbeam Drill Core Data--Spec--continued

Sample	Re	Nb	Ni	Pb	Sb	Sc	Sr	V	W	Y	Zn	Zr
S034260	<0	20	<0	30	N	<0	N	15	N	10	N	300
S034270	20	<0	<0	10	N	N	N	15	N	10	N	100
S034277	N	<0	<0	10	N	N	N	15	N	10	N	300
S034285	N	20	<0	50	N	N	N	15	N	10	N	300
S034297	15	20	<0	20	N	5	N	15	N	20	N	300
S034305	5	20	<0	50	N	7	N	15	N	20	N	300
S034316	15	20	<0	50	N	7	N	70	N	20	N	300
S034328	<0	20	<0	20	N	5	N	50	N	10	N	200
S034340	<0	20	<0	70	N	5	N	50	N	15	N	200
S034350	<0	20	<0	30	N	5	N	70	N	15	N	300
S034357	<0	20	<0	30	N	5	N	20	N	15	N	200
S034367	N	20	<0	20	N	5	N	30	N	15	N	300
S034375	N	20	<0	20	N	5	N	50	N	10	N	200
S034385	10	20	<0	30	N	15	N	20	N	30	N	700
S034395	N	20	<0	50	N	10	N	20	N	50	N	700
S034403	N	20	<0	30	N	15	N	20	N	50	N	700
S034413	5	20	<0	50	N	10	N	20	N	50	N	700
S034423	<0	20	<0	20	N	10	N	15	N	30	N	700
S034430	20	20	<0	50	N	10	N	30	N	30	N	500
S034441	N	20	<0	30	N	10	N	20	N	20	N	700
S034450	N	20	<0	20	N	15	N	30	N	50	N	700
S034460	N	20	<0	30	N	15	N	30	N	50	N	700
S034470	N	20	<0	20	N	20	N	30	N	50	N	700
S034475	N	20	<0	30	N	20	N	50	N	50	N	700
S034485	N	20	<0	50	N	10	N	70	<0	50	N	300
S034493	N	20	<0	30	N	20	N	70	<0	70	N	500
S034499	N	20	<0	30	N	20	N	70	<0	50	N	500